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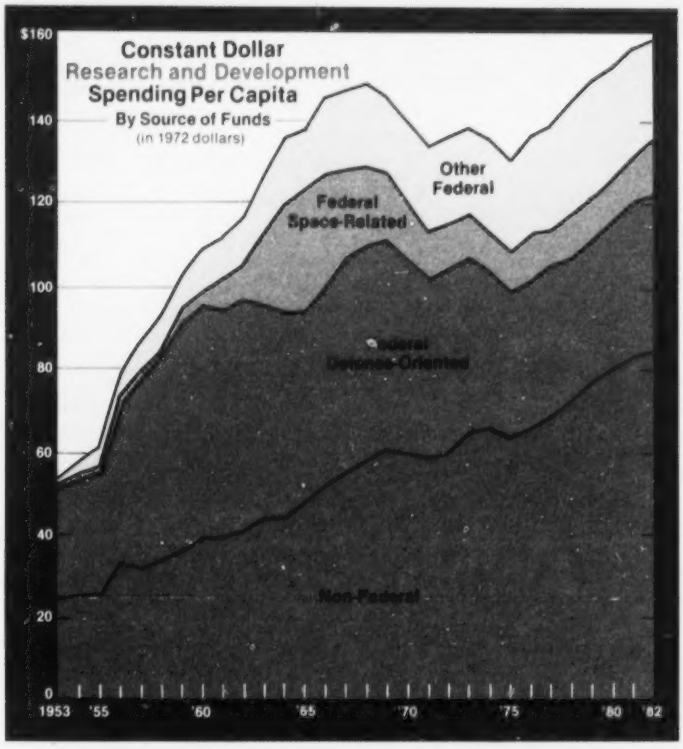
THE CONFERENCE BOARD

Research and Development

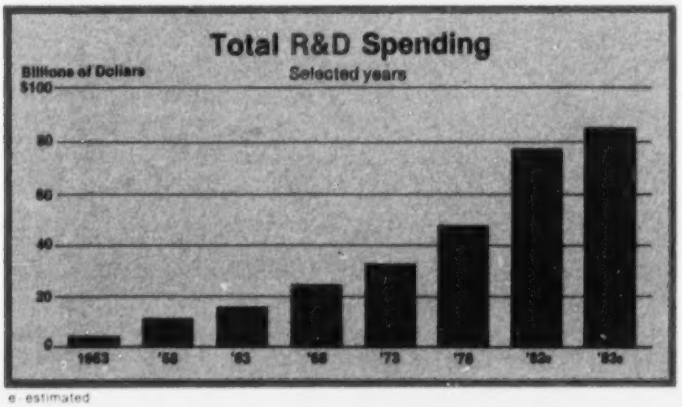
Economic Road Maps
No. 1956 August, 1983

An estimated $85 billion, which amounts to approximately 2½% of our GNP, is being spent on research and development in 1983. Twenty-five years ago, we spent only $11 billion on R&D, but that amount was also equal to about 2½% of GNP. In fact, an almost constant share of our economic resources has been directed over the years toward developing more efficient methods of production, better product design, or entirely new products. The goals of the R&D effort are to increase basic knowledge and to obtain a better understanding of how to transform raw materials, through the application of labor and capital, into useful commodities. Reaching these goals is often a lengthy, expensive, difficult and not altogether direct process.



There is a constancy to the three-staged R&D process. The first step is alway *Basic Research*—original, unguided, unspecified investigation aimed at increasing knowledge. Ideas developed in the "ivory tower" investigation are explored for practical usage in the second stage, *Applied Research*. If and when a practical application is identified, an attempt is made to exploit it in the production of useful devices or processes in the third stage *Development*. In 1982, 12% of the total R&D budget was devoted to *Basic Research* and about two-thirds of that amount was financed by the Federal Government. *Applied Research* took 21% of the total R&D budget, about equally divided between Federal Government and private industry financing. The remaining two-thirds of the R&D budget was devoted to *Development*, with somewhat more than half of it financed by private industry. This overall pattern of spending and funding has remained very much unchanged over the last 30 years.

Industrial funding of R&D is concentrated in a handful of manufacturing industries and, over the years, the growth of this funding has been closely



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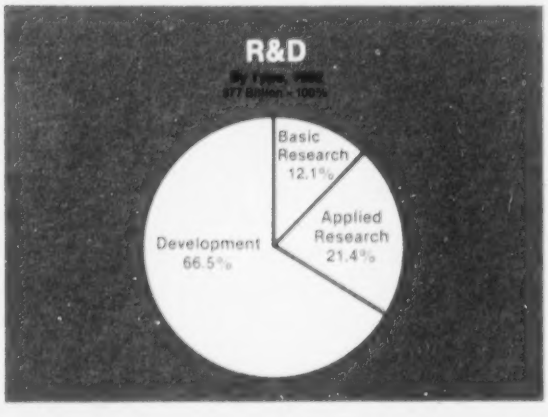
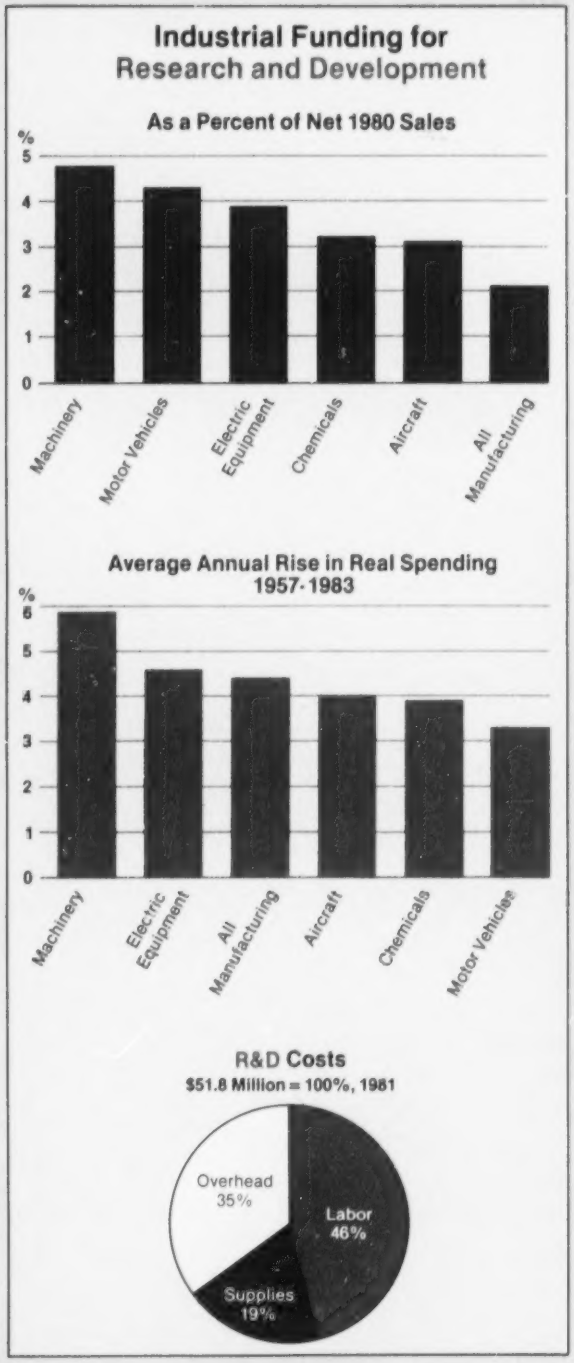


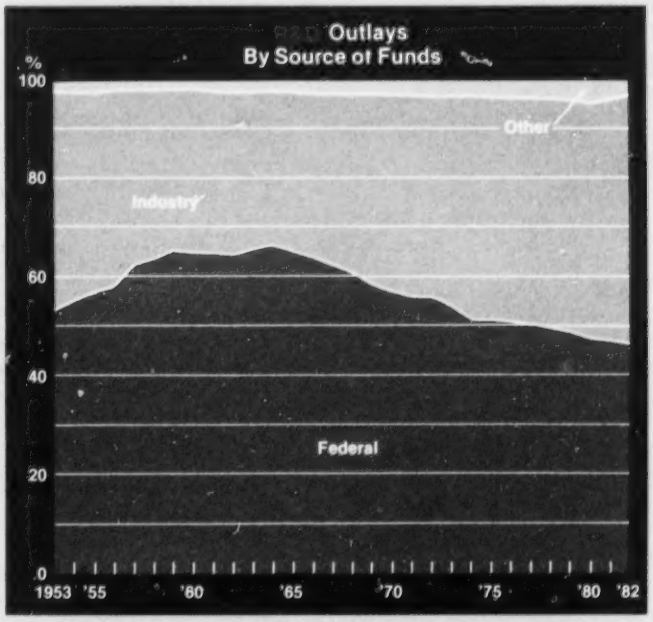


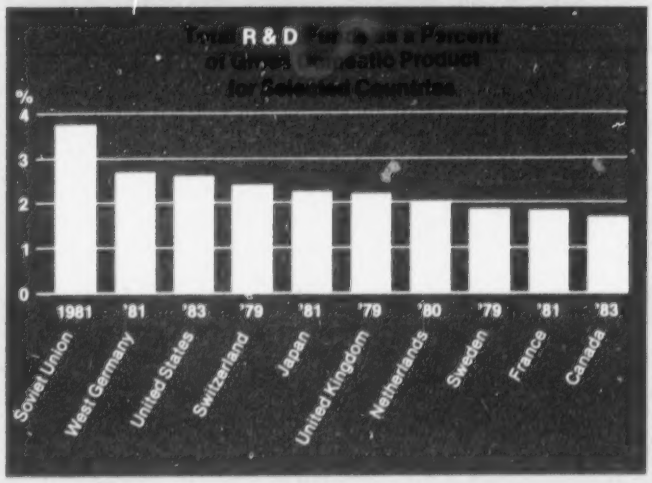
tied to the growth in sales. For example, in 1980, companies involved in the manufacture of machinery spent just under 5% of their sales revenue on R&D—in addition to whatever funds were available from government or other sources. That 5% ratio has changed very little in the last three decades, which implies, then, that R&D financing is effectively treated as part of the overhead charge. The extent of an industrial R&D project, in terms of its funding level or time schedule is, then, initially determined more by the financial health of the company than by the size and scope of the project envisioned.

Just as company R&D can be related to sales revenue, national R&D can be tied to GNP. Almost all the world's R&D effort is concentrated in about 10 highly developed, technologically advanced countries. Year after year, these countries generally spend the equivalent of between 1½% and 2½% of GNP on R&D.

Ken Goldstein

Sources: National Science Foundation; The Conference Board.





ECONOMIC ROAD MAPS

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